STEM Transitions: Enhancing Mathematics and Science Rigor through Evidence-Based Curriculum Projects

Background

Community colleges, in collaboration with secondary and postsecondary education, business and industry, and government leaders, must ensure that all students complete their education with the necessary science, technology, engineering and mathematics (STEM) competencies for the United States to remain competitive in the expanding global economy. The outcomes of the Office of Vocational and Adult Education's (OVAE's) STEM integration project include: (1) increasing the number of students participating in STEM related programs of study; (2) enhancing academic and technical skills students need for successful transitions to college and careers and competition in a world class workforce; and (3) increasing the number of community college students graduating as potential professionals in STEM fields. The project is based on the premises that students: (1) learn more effectively when they relate their studies to real-world values and consequences; and (2) their mathematics and science achievement levels improve by applying classroom learning to the solution of authentic problems.

Overview

The Center for Occupational Research and Development (CORD) has contracted to complete the STEM Integration project, which is funded by OVAE under a cooperative agreement with the League for Innovation in the Community College. One of the goals of the project include developing context-based instructional materials that demonstrate the convergence of technical and academic concepts for programs of study aligned with the following six STEM-related career clusters: health science, information technology, manufacturing, transportation, STEM, and agriculture. The project will also provide community college math and science faculty with research-based curriculum strategies that demonstrate the relevance of rigorous math and science skills in STEM related occupations. These same curriculum strategies will be available to career and technical education (CTE) faculty to ensure the inclusion of rigorous math and science skills in CTE community college courses.

Outcomes

- Aids students in the mastery of essential mathematics and science concepts;
- Motivates students to pursue STEM-related careers;
- Provides students with real-world tasks that encourage career exploration;
- Provides faculty with teaching strategies based on industry scenarios that develop and enhance teamwork and critical thinking skills;
- Provides faculty with guidelines and resource curriculum materials; and
- Provides faculty with assessment strategies and rubrics to measure student performance.

Timeline

FY2007 to FY 2008

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Web site

http://www.stemtransitions.org